

REMARKS

In view of the foregoing amendments and following remarks responsive to the Office Action of July 5, 2002, Applicant respectfully requests favorable reconsideration of this application.

Rejections of a Formal Nature

In sections 3 and 4 of the Office Action, the Patent and Trademark Office ("Office") rejected claim 20 under 35 U.S.C. §112, second paragraph, as being indefinite in that there is a missing word or words in the claim. The Office also pointed out similar problems in various locations on pages 13 and 14 of the specification.

The Examiner's rejection is well taken and, in fact, in reviewing the present application, applicant has noted further missing words and typographical errors. Applicant has herein corrected all of those typographical and clerical errors. The errors and their corrections should be self-explanatory. However, in brief, it should be apparent that, the word "firearm" was accidentally removed in various places of the specification and claims due to some type of word processing batch-word-replace error.

Applicant notes that, with this correction to claim 20, it should now be allowable over the prior art since the rejection under 35 U.S.C. §112, second paragraph, was the only rejection asserted against claim 20.

In sections 5 and 6 of the Office Action, the Office rejected claims 1-4, 9 and 12 under 35 U.S.C. §102(e) as being anticipated by Bork.

Applicant respectfully traverses this rejection as the invention patentably distinguishes over Bork.

The present invention relates to a hunter safety system in which each hunter carries an electronic device capable of determining its own location (such as through a GPS receiver) and communicating that information to other such devices (such as through a peer-to-peer wireless communication system or a cellular wireless communication system). The electronic device can be mounted on the hunter's firearm or body or otherwise be adapted to know the direction in which the hunter's firearm is pointing and warn the hunter and/or disable the firing mechanism of the firearm if the firearm is pointing in the direction of another one of such electronic devices (presumably carried by another hunter).

Bork, on the other hand, discloses a wireless location and direction indicator for multiple devices utilizing GPS, a compass and a wireless communication system. However, Bork is not adapted for a hunting environment or similar outdoor environment. Instead, Bork is directed to urban-type applications such as finding lost children in malls. Furthermore, Bork does not contain any teaching disclosing or making obvious a device adapted to "indicate if an unsafe condition exists, said unsafe condition comprising another of said devices being within a certain distance and in a certain direction of said device".

The above quoted language was formerly found in claim 2 and is now incorporated in claim 1. Accordingly, claim 1 clearly distinguishes over Bork. The closest that Bork comes to anything resembling this aspect of the present invention is providing an alert if two units become separated by more than a predetermined distance (col. 3, lines 54-58). This is clearly different in that, (1) in the present

invention, the unsafe condition exists if two units are too close to one another, rather than too far from one another and (2) there is no dependence on relative direction in Bork.

As is well known, a rejection under 35 U.S.C. §102 in view of a single reference is proper only if the reference discloses each and every limitation of the claim. Obviously, that is not the case with respect to claim 1 as amended. Accordingly, the rejection of claim 1 and its dependent claims 2-4 should be withdrawn.

Even further, claim 3 depends from claim 1 and adds the limitation of “providing a mechanism for mounting said device to said hunter’s firearm such that said compass indicates the direction in which said firearm is pointing”. Since Bork makes no mention of firearms, it obviously cannot teach anything similar to this limitation.

Independent apparatus claim 9, as amended, contains essentially similar limitations to those discussed above in connection with independent method claim 1. Accordingly, it distinguishes over Bork for the same reasons as claim 1.

Rejected claim 12 depends from claim 9 and, therefore, distinguishes over Bork for the same reasons discussed in connection with claims 1 and 9.

Obviousness Rejections

Claims 5 and 8

MPEP §2143 lists three requirements for a proper rejection based on obviousness, namely:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

In section 8 of the Office Action, the Office rejected claims 5 and 8 under 35 U.S.C. §103(a) as being unpatentable over Bork in view of Dymek. Claim 5 depends from claims 1 and 2 and pertains to an embodiment of the invention in which all of the location information is collected by a central processing unit remote from the actual electronic tracking devices. More specifically, that central processing unit collects all of the information and transmits a report to all of the electronic tracking devices as to the location of all of the electronic devices. The Office asserted that Dymek teaches these limitations. However, Applicant respectfully traverses.

Dymek discloses a firefighter emergency locator system in which a firefighter wears a mobile electronic device comprising a GPS receiver and a radio transmitter that transmits the location of the firefighter to a central unit which stores in memory the path of the firefighter. If the firefighter needs to be rescued, the firefighter activates a button on the unit to request rescue. The central unit receives the rescue request and can download the path of the downed firefighter to other mobile units. The other mobile units include a display with arrows that selectively illuminate to guide the rescuer to follow the path of the downed firefighter. Accordingly, other firefighters can carry a mobile unit, follow the arrow directions indicated by the mobile unit to find the downed firefighter. In accordance with the description in Dymek, all of the mobile units have transmitters as opposed to transceivers. Accordingly, to transfer the path information from the central unit to a mobile unit so that rescuers can use the mobile unit to retrace the path of the downed firefighter,

the mobile unit must be physically coupled to the central unit to download that information.

Original claim 5 distinguished over this combination. Furthermore, Applicant has herein amended claim 5 in order to more clearly recite this distinction.

Particularly, Applicant has amended claim 5 to note that steps (1.2) and (1.4) are wireless receiving and transmitting steps and has amended step (1.1) to expressly state that the central processing device is remote from said electronic devices.

Hence, Dymek does not teach step 1.4 of “wirelessly transmitting said report from said central processing device to said devices in said locale”. Dymek, of course, also does not cure the defect in the rejection inherited from claim 1, from which it depends, in that neither Bork nor Dymek teaches the mobile unit indicating an unsafe condition when another mobile unit is within a certain distance and direction.

Accordingly, claim 5 clearly distinguishes over the combination of Bork and Dymek because, at a minimum, the references do not teach at least two of the limitations of the claim.

Claim 8 depends from claim 5 and further adds the step of “providing a hunting ground within which said devices can operate”. The Office asserted that this is found in column 6, lines 17-38 of Bork. However, column 6, lines 17-36 of Bork mention only a department store and a shopping mall. There is no discussion in Dymek or Bork of hunting. Accordingly, this limitation cannot possibly be met by any combination of these references. Hence, claim 8 adds further distinguishing features over the prior art of record.

Claims 6, 15, 16 and 21

The Office further rejected claims 6, 15, 16, and 21 under 35 U.S.C. §103(a) as being unpatentable over Bork and Dymek as applied to claims 1 and 5 and further in view of Ellis. Claim 6 depends from claim 5 and adds the step of “providing at least one communication base station comprising an antenna and a receiver for transferring said location data and said report between said devices and said central processing device”. Applicant respectfully traverses.

Ellis teaches a personnel monitoring man-down alarm and location system in which a user wears an electronic safety unit that incorporates a multi-access motion detector. When the motion detector detects a lack of motion for a predetermined period of time, it issues an alarm signal via radio to a central unit. An operator at the central unit can then alert other officers that a man appears to be down. The signal, of course, identifies the particular unit and thus the particular person who is presumably disabled.

Contrary to the Office’s assertions with respect to claim 6, Ellis does not disclose transferring location data between devices. In fact, the devices do not generate location data at all and, therefore, obviously cannot transfer it between the devices. Rather, they merely determine whether an individual is moving or not and transmit that information to the central unit. Thus, Ellis does not teach the features for which it has been cited and, in fact, is largely irrelevant. Thus, claim 6 clearly distinguishes over the proposed combination of Bork, Dymek, and Ellis

With respect to claim 15, which depends from claim 9 and recites that the apparatus further comprises “a warning device indicating said unsafe condition” the Office asserted that Ellis discloses a warning device for indicating unsafe condition

in column 3, lines 27-57 and columns 7-8, line 53-14. However, the Office has misunderstood what is being claimed in claim 15. Claim 15 recites that the apparatus itself (i.e., the mobile unit) comprises the warning device. In Ellis, the warning device referred to in the sections cited by the Office is in the central station, which is very different than what is recited in claim 15. Accordingly, dependent claim 15 clearly even further distinguishes over the proposed combination of Bork, Dymek, and Ellis, in addition to the reasons set forth above in connection with claim 9, from which it depends.

The same argument applies to claim 16, which depends from claims 9 and 15 and adds that the warning device is an audio device for generating an audible signal. Again, claim 16 is referring to the warning device on the mobile unit carried by the hunter. Accordingly, in essence, Ellis essentially contains no relevant disclosure with respect to claims 6, 15 or 16 and these claims clearly distinguish over Bork, Dymek and Ellis alone or in combination.

With respect to claim 21, which recites that "said processing device causes said transmitter to transmit said location information only if said apparatus has moved more than a predetermined distance since the last time the apparatus transmitted its location information", the Office asserted that Ellis teaches this in column 3-4, lines 57-18. Applicant has reviewed not only the cited section of Ellis but the entire reference and has been unable to find anything even remotely resembling this feature. If anything, Ellis generally teaches in the opposite direction in that the fundamental purpose of Ellis is to determine a lack of motion and report that as a presumed "man-down" condition.

This feature of the invention pertains to a situation in which the system attempts to conserve battery power by not transmitting location information at the normal predetermined intervals if the location of the person/unit does not change. Particularly, as noted in the specification, the most power-hungry aspect of the device of the present invention is transmitting its location information wirelessly. In hunting, hunters often remain stationary for lengthy periods of time. Accordingly, it is a waste of power to continuously transmit that data. Thus, instead, the apparatus determine for itself whether it has moved since the last time it reported its location information. If not, it simply does not report that information and the central unit or other mobile units, who do not receive any new location information from that unit simply assume that it is in the same position as last reported.

There is absolutely nothing in Ellis that even remotely resembles this feature. Accordingly, dependent claim 21 even further distinguishes over the prior art.

Claims 7, and 17-19

Finally, in section 10 of the Office Action, the Office rejected claims 7 and 17-19 under 35 U.S.C. §103 as unpatentable over Bork, Dymek and Ellis as applied to claims 5 and 15 and further in view of Jacobsen.

Claim 7 recites “utilizing a third party wireless communication system for transferring said location data and said report between said devices and said central processing device”. This feature relates to the embodiment of the invention in which the system simply uses a preexisting cellular telephone system rather than a peer-to-peer communication system or a purpose-built wireless local area network. The Office asserted that this is taught by Jacobsen in column 14, lines 12-49. However,

Jacobsen actually teaches exactly the opposite. Jacobsen discloses a military battlefield system for remote monitoring of personnel. There is no discussion in Jacobsen of, nor would it be advisable to rely on, a third party cellular telephone system in a military application, particularly in an enemy theater.

Accordingly, dependent claim 7 clearly even further distinguishes over the prior art of record.

Claims 17, 18 and 19 specifically recite that the warning device is a visual signal (claim 17), that it is an LCD display screen (claim 18) and that it comprises at least one light that is illuminated when an unsafe condition is detected (claim 19). Without going into the details of these claims, suffice it to say that Jacobsen does not cure any of the defects in the rejections of the claims from which claims 17, 18 and 19 depend. Accordingly, these claims distinguish over the prior art for all of the reasons discussed above in connection with claims 9 and 15, from which they depend.

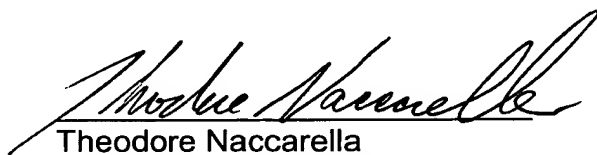
Claims 10, 11, 13, and 14

With respect to claims 10, 11 13 and 14, the Office asserted that they are apparatus claim corresponding to method claims 2, 3, 4 and 6, respectively, and therefore, are rejected for the same rationales. Accordingly, all of the distinctions discussed above in connection with claims 2, 3, 4 and 6 apply equally to claims 10, 11, 13 and 14. Therefore, they distinguish over the prior art of record for the reasons set forth above in connection with claims 2, 3, 4 and 6 and the claims from which they depend.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made"**.

In view of the foregoing amendments and remarks, this application is now in condition for allowance. Applicant respectfully requests the Examiner to issue a Notice of Allowance at the earliest possible date. The Examiner is invited to contact Applicant's undersigned counsel by telephone call in order to further the prosecution of this case in any way.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read 'Theodore Naccarella', written over a horizontal line.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**In the Specification:**

Paragraph beginning at line 3, page 2 has been amended as follows:

In operation, a GPS receiver receives transmissions from two or more of the geo-stationary GPS satellites and, through the use of triangulation, can determine the position of the receiver relative to the satellites. More particularly, each satellite transmits a signal that includes information as to what particular satellite is transmitting the signal and the timing of the signal. A GPS receiver receiving signals from two or more satellites can determine the length of time each signal took to reach the receiver for each satellite and, by the running a mathematical triangulation algorithm on the received data, pinpoint the location of the receiver relative to the satellites. Original GPS systems were relatively bulky and thus typically vehicle mounted. They were originally used in military applications, such as aircraft and missiles. They have since become common for use in navigation systems in automobiles. Eventually, the electronics of the receivers became inexpensive and small enough that there are now many commercially available palm-top GPS receivers. Typically a user of a GPS system must manually input his elevation relative to mean sea level in order for the device to work most accurately.

Paragraph beginning at line 12 of page 9 has been amended as follows:

The unit includes any reasonable processing means such as a digital signal processor (DSP), a micro processor, an applications specific integrated circuit (ASIC), a programmed general purpose processor, and/or analog circuitry for processing the GPS information indicating the location of the device as well as the

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location of all of the other devices received by the wireless communication transceiver to determine the location of each other device relative to itself, generating signals to report its own location via the transceiver to the other devices, combining that information with the digital compass output to determine the direction in which the firearm is pointing and issuing a visual or audible warning when the weapon is pointing in the direction of another hunter that is within an unsafe distance.

Paragraph beginning at line 1 of page 10 has been amended as follows:

In an even more preferred embodiment of the invention, the device includes an output terminal for coupling to a mating input terminal of the firing mechanism of the firearm on which a signal is generated when the processor determines that the firearm is pointing toward another hunter that electronically disables the firing mechanism. The DISABLE signal is asserted when the processor detects that the firearm is pointing in the direction of another such device that is within an unsafe distance of the device.

Paragraph beginning at line 1 of page 12 has been amended as follows:

While the invention has so far been described in connection with firearms and hunters, it can be used in connection with any other weapon and in connection with any other activity for which it would be useful to know the location of other individuals.

Paragraphs beginning at line 4 of page 13 have been amended as follows:

Figure 1 is a block diagram of an exemplary device 10 in accordance with a preferred embodiment of the present invention. The unit includes a GPS receiver 12, a digital compass 14, a wireless transceiver 16, a DSP 20, and a display device 18, all operatively coupled to provide the functionality set forth in this specification. The device 10 is fixedly mounted to a firearm (not shown) so that the direction determined by the compass is indicative of the direction in which the firearm is pointing.

In operation, the GPS receiver 12 determines the location of the device 10 at predetermined intervals, e.g., every ten to fifteen seconds, and reports that information to the DSP 20. The DSP 20 controls the transceiver to transmit the location information periodically. The transceiver 16 also receives a report from a central base station providing the location of others of the devices at periodic intervals. The digital compass 14 also reports direction to the DSP 20 at periodic intervals. The interval for reporting the compass direction should be much smaller than the other intervals, namely, on the order of several times a second, since an individual can change the direction in which the firearm is pointing very quickly.

Paragraph beginning at line 1 of page 14 has been amended as follows:

The DSP 20 runs the information disclosing the location of all of the devices, including itself, and the compass information through an algorithm to determine whether there are any other devices that have last reported their location in the direction that the weapon is pointing and within an unsafe distance and provides that information to the user through the display 18. In a preferred embodiment of the

invention, the device also has an output terminal for coupling to the firing mechanism of the firearm and outputs a signal disabling the firing mechanism when an unsafe condition is detected. In a preferred embodiment, the device disables the weapon when it is pointing within some angular range of the exact direction to another device. This angular range should be selected to provide a reasonable safety margin and may be on the order of about (i.e., 2.5°-22.5° to each side of the other device), but preferably about 5°-25°. The angular also range may be dependent upon the distance between the devices.

Paragraph beginning at line 18 of page 14 has been amended as follows:

The display 18 and the manner in which the information is displayed thereon can take many forms. In a simple embodiment, an unsafe condition can be reported by illuminating a red light. Alternately or in addition, an audible warning tone can be sounded in the case of detection of an unsafe condition. In more sophisticated embodiments, the actual position of the other devices also or alternately can be provided through a textual display or a graphical map display on an LCD (liquid crystal diode) screen. Even further, a map can display the direction in which the other units have been moving and or provide a trace of the movement of the other units over a predetermined preceding amount of time, e.g., five minutes and/or the times of the last received reports of their locations. This would assist users in providing them with a predictor of the likely direction in which the other individuals are moving since the last report.

In the claims:

1. A method of providing enhanced safety among a plurality of hunters hunting in a particular locale, said method comprising the steps of:

(1) providing a wireless communication system covering said locale; and

(2) providing each hunter with an electronic device adapted to determine its location and orientation, transmit its location information through said wireless communication system, receive location information of said other of said devices in said locale, determine the location of the other of said devices in said locale relative to its own location and orientation, and indicate if an unsafe condition exists, said unsafe condition comprising another of said devices being within a certain distance and in a certain direction of said device.

2. The method of claim 1 wherein step (2) [further] comprises providing each device with an electronic compass to determine [an] said orientation of said device, said device [further] adapted to combine said orientation information and said location information to determine the distance and direction of said other devices relative to said device [and wherein said unsafe condition comprises another of said devices being within a certain distance and in a certain direction of said device].

3. The method of claim 2 further comprising the step of:

(3) providing a mechanism [to each said hunters] for mounting said device to said hunter's firearm such that said compass indicates the direction in which said firearm is pointing.

5. The method of claim 2 wherein step (1) comprises the steps of:

(1.1) providing a central processing device remote from said electronic devices;

(1.2) wirelessly receiving at said central processing device said location information transmitted by said devices in said locale;

(1.3) processing at said central processing device said location information of said devices to generate a report of the location of all of said devices in said locale; and

(1.4) wirelessly transmitting said report from said central processing device to said devices in said locale.

9. An apparatus for providing enhanced safety among a plurality of hunters hunting in a particular locale, said apparatus comprising:

an electronic device adapted to determine its location and generate a location signal;

a compass for determining an orientation of said apparatus;

a wireless transmitter for transmitting said location signal;

a wireless receiver for receiving location information of said other of said [devices] apparatuses; and

a processing device adapted to determine the location of the other of said apparatuses relative to said apparatus and generate a warning [of] if an unsafe condition exists, said unsafe condition comprising another of said devices being within a certain distance and in a certain direction of said device.

10. The apparatus of claim 9 [further comprising an electronic compass to determine an orientation of said apparatus and] wherein said processing device combines said orientation [information] and said location information to determine the distance and direction of said other devices relative to said device [and wherein said unsafe condition comprises another of said devices being within a certain distance and in a certain direction of said device].

11. The apparatus of claim 10 further comprising:
a mechanism for mounting said device to a firearm such that said compass indicates the direction in which said firearm is pointing.

20. The apparatus of claim 9 further comprising a signal output line for coupling to control a firing mechanism of a firearm and wherein said processing device further asserts a signal on said signal output line that disables said firing mechanism when said unsafe condition exists.

21. The apparatus of claim 9 wherein said processing device causes said transmitter to transmit said location information only if said apparatus has moved more than a predetermined distance since the last time the apparatus transmitted its location information.